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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,329	04/19/2001	Kiyoshi Toshimitsu	206167US2RD	8567

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EXAMINER

MEW, KEVIN D

ART UNIT PAPER NUMBER

2664

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/837,329

Applicant(s)

TOSHIMITSU ET AL.

Examiner

Kevin Mew

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-15, 18, 21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-15, 18, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

Detailed Action

Response to Amendment

1. Applicant's Remarks/Arguments filed on 3/16/2005 regarding claims 12-15, 18, 21-22 have been considered and are currently pending. Claims 1-11, 16-17, 19-20 have been canceled by the Applicant.
2. Acknowledgement is made of the amended specification regarding the objection to the drawings cited in the previous Office Action. The correction is acceptable and the objection to the drawings has been withdrawn.
3. Acknowledgement is made of the canceled claims 1-2, 4, 7, 10, 16-17, 19-20 and therefore the 35 U.S.C. 112, second paragraph rejections to claims 1-2, 4, 7, 10, 16-17, 19-20 have been withdrawn.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12, 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the last line of claim 12, it is not clear as to what “a total sum of allocated communication bandwidths” is comparing to when “a total sum of allocated communication bandwidths is smaller” is cited.

In claim 15, it is not clear as to what the range of values is in order for the total sums of the communication bandwidths will be considered to be “small.”

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 12-14, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson et al. (USP 5,736,959) in view of Spinar et al. (US Publication 2002/0080816).

Regarding claims 12, 21, Patterson discloses a frame configuration method for time-division multiplexed frames to transfer signals between a radio base station and a plurality of radio terminals, the frame configuration method comprising:

(a) allocating an entire frame configuration information indicating frame configuration of all the time division multiplexed frames to one of the time division multiplexed frames (a supercell that comprises of nine cells where each cell is assigned to one of nine equal time slots with full frequency allocated within each cell. A supercell is thus a time-division multiplexed cell of its nine cells, see col. 18, lines 35-67).

(b) allocating communication bandwidths of an identical time in different frames to different radio terminals such that an amount of mutual interference among those signals to be transferred at the identical time with respect to the different radio terminals is less than a threshold determined before the step (b) (a supercell that comprises of nine cells where each cell is assigned to one of nine equal time slots with full frequency allocated within each cell and SDMA is used to eliminate interference between cells scanned at the same time in adjacent supercells. A supercell is thus a time-division multiplexed cell of its nine cells, see col. 18, lines 35-67),

the step (a) allocates the entire frame configuration information to a frame to which a control information to be transmitted to all the radio terminals simultaneously is allocated (channel information is to be used in a TDMA frame, see col. 18, lines 1-10 and Fig. 8a).

Patterson does not explicitly show when there is a difference between total sums of the communication bandwidths allocated to the time division multiplexed frames, the step (b) allocates a next communication bandwidth to a frame for which a total sum of allocated communication bandwidths is smaller.

However, Spinar discloses a connection with a current bandwidth that is less than the maximum bandwidth may be allocated uplink bandwidth (see entire paragraph 0127).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bandwidth allocation method of Patterson with that of Spinar such that a communication bandwidth is allocated to the frame where a total sum of current bandwidths of the frame is smaller than the total sum of current bandwidths of other frames. The

motivation to do so is to allow the frame with insufficient current bandwidth to have a higher priority to obtain the available bandwidth first.

Regarding claims 13 & 14, Patterson discloses all the aspects of the claimed invention set forth in the rejection of claim 12 above, except fails to disclose the frame configuration method of claim 12, wherein the step (b) determines the next communication bandwidth to be allocated such that a total sum of allocated communication bandwidths for a reference frame selected in advance among time division multiplexed frames is not exceeded by a total sum of allocated communication bandwidths for any other time division multiplexed frames.

However, Spinar discloses a connection with a current bandwidth that is less than the maximum bandwidth may be allocated uplink bandwidth that is the smaller of their maximum bandwidth or their current bandwidth plus the bandwidth necessary to send a CG bandwidth change message (see entire paragraph 0127).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bandwidth allocation method of Patterson with that of Spinar such that the next communication bandwidth to be allocated to a frame with the smaller current bandwidth will not exceed a threshold value. The motivation to do so is to ensure the frame is not allocated with just the right amount of bandwidth to carry out the operation required.

6. Claims 18, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monar et al. (USP 6,694,154) in view of Spinar et al. (US Publication 2002/0080816).

Regarding claims 18, 22, Molnar discloses the radio base station of claim 1, wherein the scheduling processing unit allocates a plurality of frame configuration information each indicating a frame configuration of a respective time division multiplexed frame (a plurality of cells in each supercell in a TDMA frame format, see col.18, lines 42-52 and Fig. 9b), to corresponding ones of the time division multiplexed frames respectively (each cell corresponds to a time slot of a TDMA frame, see col.18, lines 42-52 and Fig. 9b), and allocates communication bandwidths in different frames to different radio terminals (the channel tap estimators of the interference-rejection-combining receiver produce channel tap estimates which are used to model the radio transmission channel associated with each antenna element, see col. 10, lines 51-67) such that there is substantially no mutual interference among those signals to be transferred (each beam is transmitting signals which are in the form of TDMA frames, see col. 6, lines 19-24 and Fig. 4) with respect to the different radio terminals (to separate the wanted signals from the unwanted signals, see col. 3, lines 57-64).

Monar does not explicitly show wherein the step (b) allocates a next communication bandwidth to a frame for which a total sum of allocated communication bandwidth is smallest among the time division multiplexed frames.

However, Spinar discloses a connection with a current bandwidth that is less than the maximum bandwidth may be allocated uplink bandwidth (see entire paragraph 0127).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bandwidth allocation method of Patterson with that of Spinar

such that a communication bandwidth is allocated to the frame where a total sum of current bandwidths of the frame is smaller than the total sum of current bandwidths of other frames. The motivation to do so is to allow the frame with smallest current bandwidth to have a highest priority to obtain the available bandwidth first.

Response to Arguments

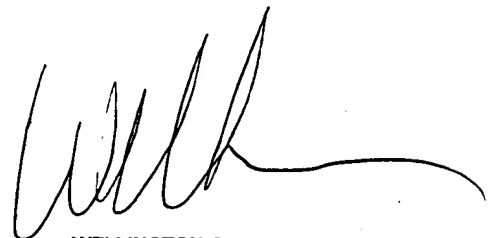
7. Applicant's arguments with respect to claims 12-15, 18, 21-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'W. Chin', with a long horizontal flourish extending to the right.

WELLINGTON CHIN
TRISORY PATENT EXAMINER